



Beltone™ **ORIA**



Technical Manual Oria Opera Plus ITC

**Beltone Oria O35/ Oria Opera Plus ITC
Beltone Oria O35 HPG / Oria Opera Plus HPG ITC**

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Key features:

- Clearsound via fully integrated digital class-D Amplifier.
- Final assemblies are available in colours Beige, Brown and Tan.
- Wax guard.
- Programmable via flex cable and HI Pro box.
- Fitting is done through SOLUS 1.2 or higher (NOAH compatible).

Options:

- Induction coil (selectable via push-button).
- Up to 4 acoustical programmes (selectable via push-button).
- Digital Volume Control with audible volume change indication (can be disabled via fitting software).

Typical Battery life (size 312) 133 hours.

Faceplate assembled is delivered in Beige color only. Brown and Tan faceplates are to build locally.

Typical performance data - IEC 118-7 2cc coupler (Normal power)

Doc. No. 0007580 rev. G

Data in accordance with IEC 118-7. All sound pressure levels (dB SPL) refer to 20 μ Pa.

Unless otherwise is stated, data are based on a battery voltage of 1.35 V and internal impedance of 5 Ohm.

			Tolerance	Unit
Reference test gain	at 1600 Hz	33	+/- 5	dB
OSPL90	Max.	115	+3/-5	dB SPL
OSPL90	at 1600 Hz	111	+/- 4	dB SPL
Full-on gain (input 50 dB)	Max.	43	+/- 5	dB
Full-on gain (input 50 dB)	at 1600 Hz	38	+/- 5	dB
Full-on telecoil sensitivity (10 mA/m)		93	+/- 6	dB
Telecoil sensitivity (10 mA/m)	at 1600 Hz	88	+/- 6	dB
Typical Harmonic Distortion	at 500 Hz	1.8	+3	%
	at 800 Hz	1.8	+3	%
	at 1600 Hz	1.6	+3	%
Frequency range		200 - 5600		Hz
Typical equivalent input noise		23	Max. 27	dB SPL
Current drain		1.2	20	%
Battery life time	Batt. type 312	133		hrs

Full-on gain parameter settings						
Frequency :	250	500	1000	2000	4000	6000
Max. gain program (FOG) : G50	43	43	43	43	43	35
G80	29	29	29	29	29	29

Typical performance data - ANSI 2cc coupler (Normal power)

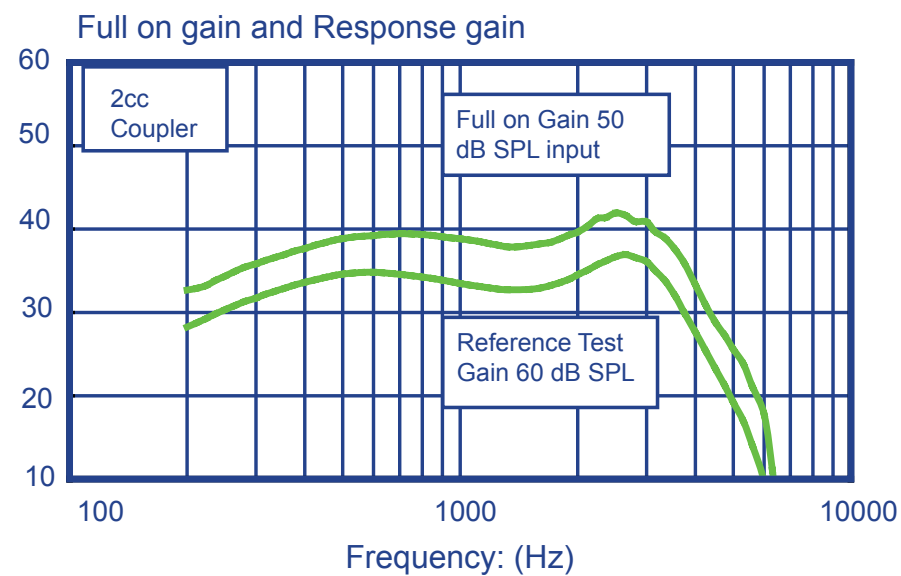
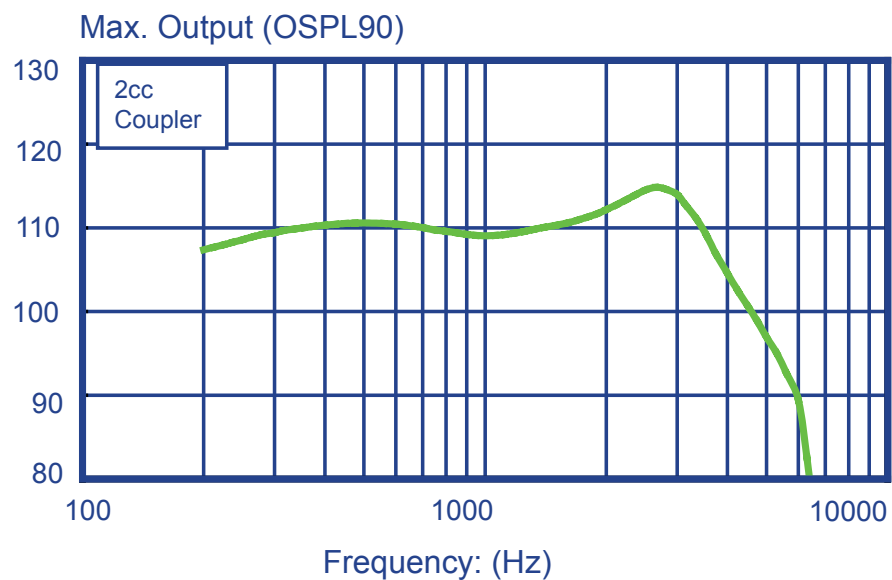
Doc. No. 0007580 rev. G

Data in accordance with ANSI S3.22-1996. All sound pressure levels (dB SPL) refer to 20 µPa.

Unless otherwise is stated, data are based on a battery voltage of 1.35 V and internal impedance of 5 Ohm.

			Tolerance	Unit
OSPL90	Max.	115	+3/-5	dB SPL
OSPL90	HFA	111	+/- 4	dB SPL
Full-on gain (input 50 dB)	Max.	43	+/- 5	dB
Full-on gain (input 50 dB)	HFA	40	+/- 5	dB
Full-on telecoil sensitivity (31.6 mA/m) Vertical loop		93	+/- 6	dB
Total Harmonic Distortion	at 500 Hz	1.8	+3	%
	at 800 Hz	1.8	+3	%
	at 1600 Hz	1.6	+3	%
Frequency range		200 - 5600		Hz
Typical equivalent input noise		23	Max. 26	dB SPL
Current drain		1.2	20	%
Battery current	Batt. type 312	133		hrs

Full-on gain parameter settings						
Frequency :	250	500	1000	2000	4000	6000
Max. gain program (FOG) : G50	43	43	43	43	43	35
G80	29	29	29	29	29	29



Typical performance data - IEC 118-7 2cc coupler (High Power)

Doc. No. 0007580 rev. G

Data in accordance with IEC 118-7. All sound pressure levels (dB SPL) refer to 20 μ Pa.

Unless otherwise is stated, data are based on a battery voltage of 1.35 V and internal impedance of 5 Ohm.

			Tolerance	Unit
Reference test gain	at 1600 Hz	32	+/- 5	dB
OSPL90	Max.	118	+3/-5	dB SPL
OSPL90	at 1600 Hz	115	+/- 4	dB SPL
Full-on gain (input 50 dB)	Max.	53	+/- 5	dB
Full-on gain (input 50 dB)	at 1600 Hz	43	+/- 5	dB
Full-on telecoil sensitivity (1 mA/m)		76	+/- 6	dB
Telecoil sensitivity (1 mA/m)	at 1600 Hz	72	+/- 6	dB
Typical Harmonic Distortion	at 500 Hz	1.6	+3	%
	at 800 Hz	1.4	+3	%
	at 1600 Hz	1.6	+3	%
Equivalent input noise (Broad Band)		24	Max. 27	dB SPL
Frequency range		200 - 6700		Hz
Current drain		1.2	20	%
Battery life time	Batt. type 312	112		hrs

Full-on gain parameter settings						
Frequency :	250	500	1000	2000	4000	6000
Max. gain program (FOG) : G50	43	43	43	43	43	35
G80	29	29	29	29	29	29

Typical performance data - ANSI 2cc coupler (High Power)

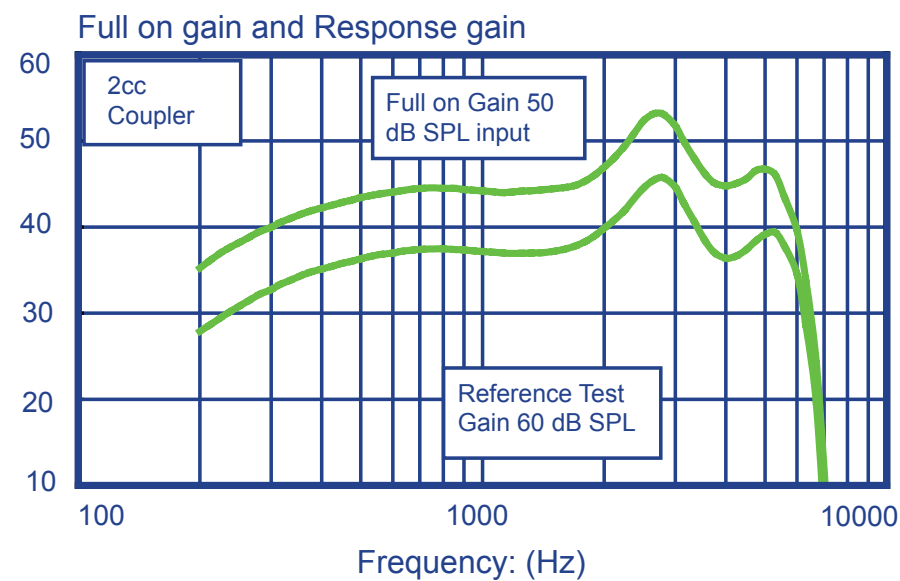
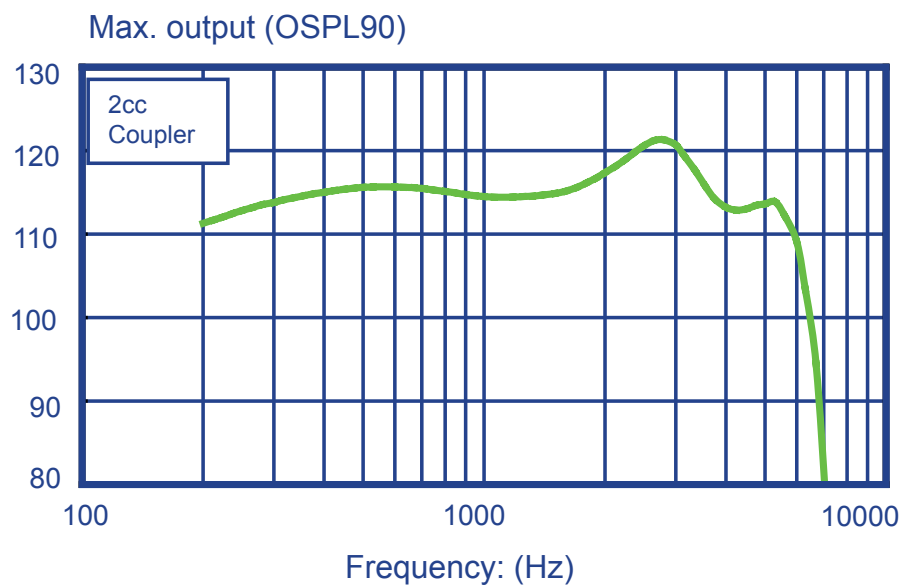
Doc. No. 0007580 rev. G

Data in accordance with ANSI S3.22-1996. All sound pressure levels (dB SPL) refer to 20 µPa.

Unless otherwise is stated, data are based on a battery voltage of 1.35 V and internal impedance of 5 Ohm.

			Tolerance	Unit
OSPL90	Max.	118	+3/-5	dB SPL
OSPL90	HFA	115	+/- 4	dB SPL
Full-on gain (input 50 dB)	Max.	53	+/- 5	dB
Full-on gain (input 50 dB)	HFA	46	+/- 5	dB
Full-on telecoil sensitivity (1 mA/m)		76	+/- 6	dB
Total Harmonic Distortion	at 500 Hz	1.6	+3	%
	at 800 Hz	1.4	+3	%
	at 1600 Hz	1.6	+3	%
Typical equivalent input noise		24	Max. 26	dB SPL
		200 - 6700		Hz
Current drain		1.2	20	%
Battery life time	Batt. type 312	112		hrs

Full-on gain parameter settings						
Frequency :	250	500	1000	2000	4000	6000
Max. gain program (FOG) : G50	43	43	43	43	43	35
G80	29	29	29	29	29	29



Part list

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Item	Part No.
Wire, ESW 7x50μ green 18 mm.	15130218
Wire, ESW 7x50μ red 32 mm.	15130032
Flex Hybrid C 2.0	15120100
Wire, ESW 7x50μ green 32 mm.	15130232
Wire, ESW 7x50μ red 34 mm.	15130034
Wire, ESW 7x50μ amber 32 mm.	15130132
Wire, ESW 7x50μ amber 14 mm.	15130114
Wire, ESW 7x50μ amber 20 mm.	15130120
Wire, ESW 7x50μ amber 25 mm.	15130125
Wire, ESW 7x50μ green 20 mm.	15130220
Wire, ESW 7x50μ green 22 mm.	15130222
Wire, ESW 7x50μ green 25 mm.	15130225
Wire, ESW 7x50μ blue 20 mm.	15130320
Wire, ESW 7x50μ blue 22 mm.	15130322
Wire, ESW 7x50μ green 13 mm.	15130213
Wire, ESW 7x50μ red 14 mm.	15130014

Item	Part No.
Wire, ESW 7x50μ red 15 mm.	15130015
Wire, ESW 7x50μ red 20 mm.	15130020
Wire, ESW 7x50μ red 22 mm.	15130022
Wire, ESW 7x50μ red 25 mm.	15130025
Tubing silicone, uncut	26100668388
Q-flex tubing, uncut	11509-000
RTV 734 silicone glue	10358-000
Push-button, Beige	19-29701
Push-button, Brown	19-29702
Push-button, Tan	19-29704
Digital VC	18-37401
Digital VC cap, Beige	66-60401
Digital VC cap, Brown	66-60402
Digital VC cap, Tan	66-60403
Tape 3M, double face	10038902

Item	Part No.
Glue, loctite 416	8066-549
Tape 3M, double face	10038902
Receiver FH 6719	15198000
Receiver - High Power ED 7305/23x95	15197900
Q-flex tubing	10049101
Silicone tubing	10929-000
Microphone EM 9267/6392	15303400
Wrap	14027-002
Sleeve / tubing, uncut	11834-001
EGC-1700 coating, 100 ml	15290401
Molykote coating FC 1292	1908-209
Service tool	10158701
Programming cable CS63 (3 pin)	17-31001
Flex strip (3 pin) for CS63 1 pcs.	17-31101
Programming cable CS44 (4 pin) blue (L)	9022 907 69029
Programming cable CS44 (4 pin) red (R)	9022 907 69019
Flex adapter CS63 (incl. a 3 pin flex-strip)	9022 907 69579
Telecoil	2238-429
Battery pill *	80B4813503

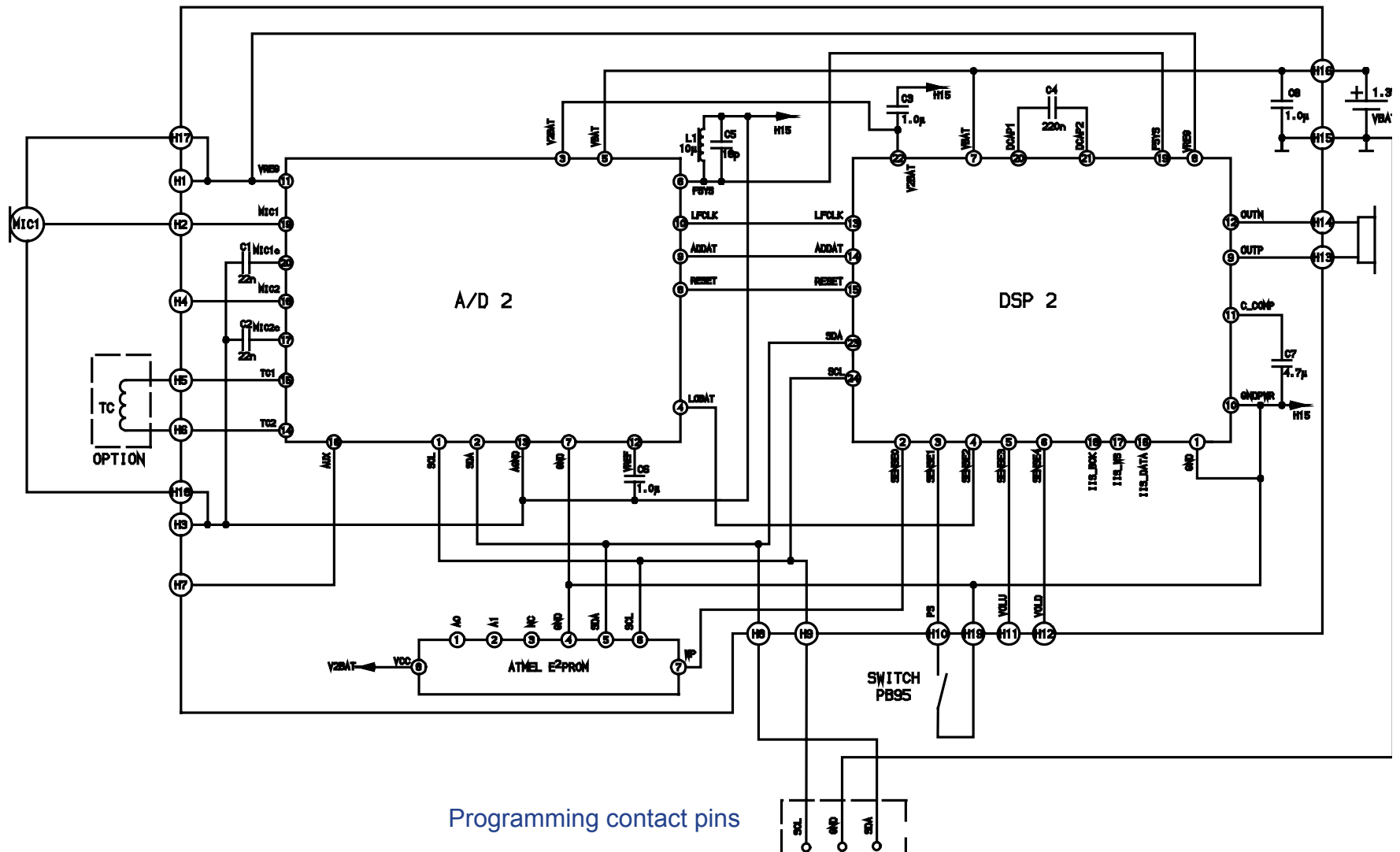
* Supplied by GNO.

Part list

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Item	Part No.
Blank Faceplates-floating push-button	
Size 312 / Left :	
Beige	66-64401
Brown	66-64403
Tan	66-64405
Blank Faceplates-fixed VC & floating push-button Size 312 / Left :	
Beige	66-64421
Brown	66-64423
Tan	66-64425
Battery doors - Size 312 Left :	
Beige	66-64551
Brown	66-64553
Tan	66-64555
Faceplates assembled complete - floating push-button, 312 Left :	
Beige	15165900
Beige - High Power	15413000
Faceplates assembled complete - fixed VC and floating push-button, 312 Left :	
Beige	15225000
Beige - High Power	15413200

Item	Part No.
Blank Faceplates-floating push-button	
Size 312 / Right :	
Beige	66-64402
Brown	66-64404
Tan	66-64406
Blank Faceplates-fixed VC & floating push-button Size 312 / Right :	
Beige	66-64422
Brown	66-64424
Tan	66-64426
Battery doors - Size 312 Right :	
Beige	66-64552
Brown	66-64554
Tan	66-64556
Faceplates assembled complete - floating push-button, 312 Right :	
Beige	15166000
Beige - High Power	15412900
Faceplates assembled complete - fixed VC and floating push-button, 312 Right :	
Beige	15225100
Beige - High Power	15413100





Connect the flex to the programming cable by using the flex end marked with an arrow.

Both programming cable sets can be used.

- Programming cable CS63 p/n 17-31001
- Flex strip for CS63 p/n 17-31101



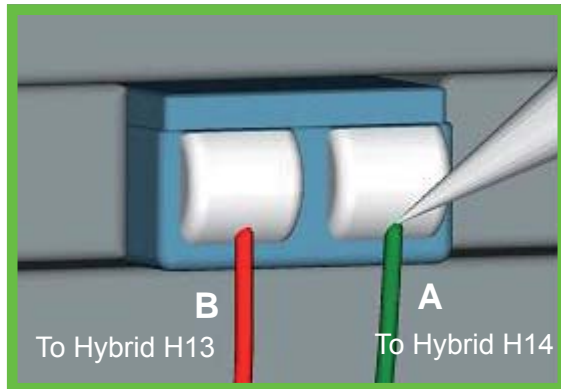
When testing/programming a battery pill must be used. Use e.g. battery pill size 10A (jack plug $\varnothing 3.5$ mm.) p/n 80B4813603.*



- Flex adapter CS63 (incl a flex strip) p/n 9022 907 69579

Programming cable CS44:

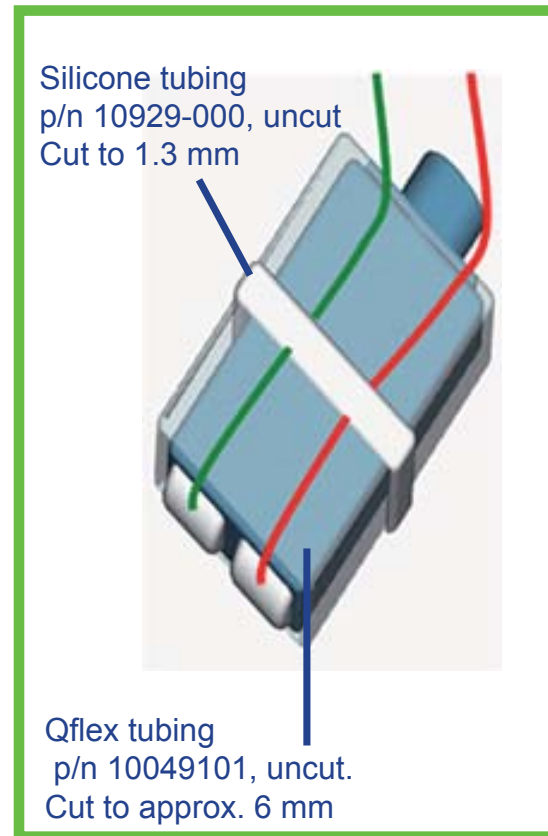
- p/n 9022 907 69029, blue (L.)
- p/n 9022 907 69019, red (R.)



Solder the wires as shown

Wire stranded, red, 32 mm
p/n 15130032

Wire stranded, green 32 mm
p/n 15130232



Place the Qflex tubing as shown. Bend the wires. Cut the silicone tubing to 1.3 mm and place it over the wires.

Microphone assembly

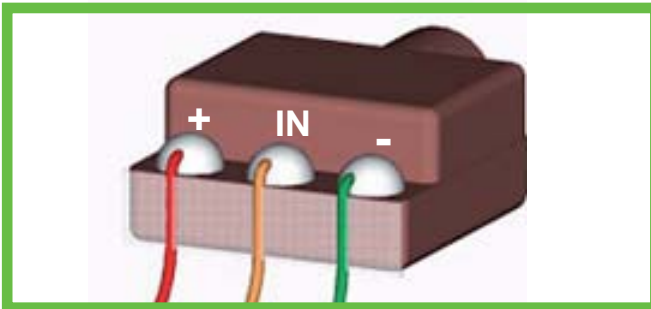
Doc. No. 0007580 rev. G

Mic wires:

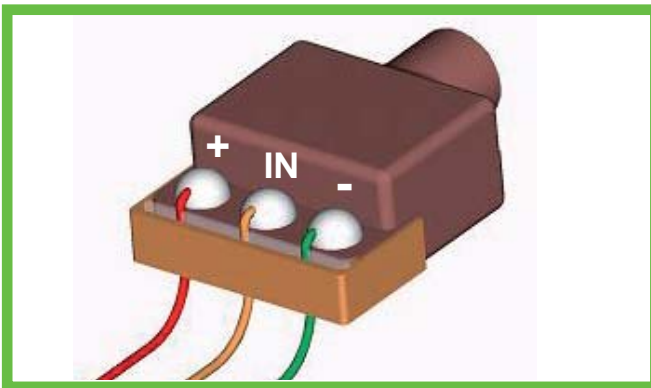
Red wire, 34 mm p/n 15130034

Amber wire, 32 mm p/n 15130132

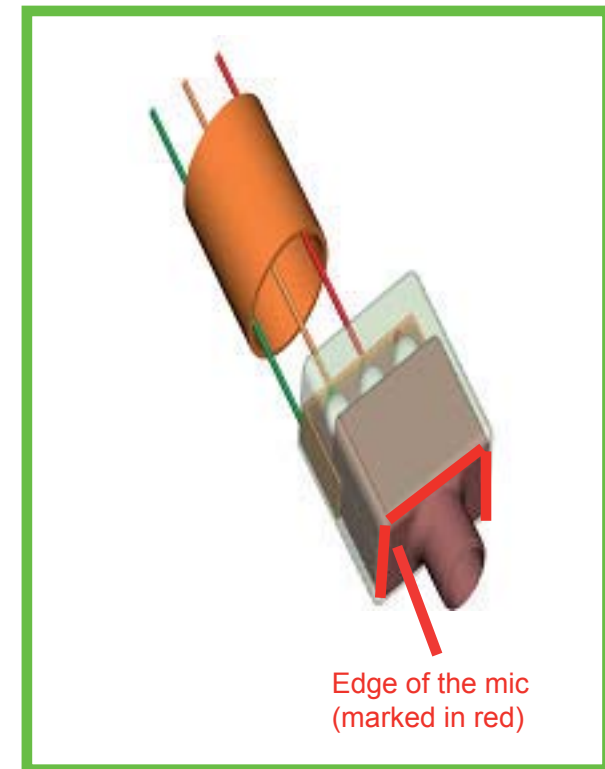
Green wire, 32 mm p/n 15130232



Place double face tape - p/n 10038902 - as shown and bend the wires towards it .



Place wrap p/n 14027-002 over the wires as shown.



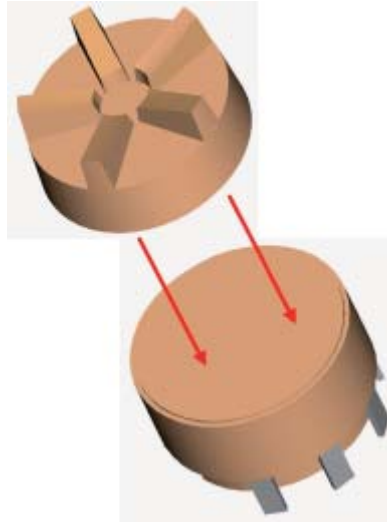
Silicone tube p/n 11834-001 (uncut).
Cut to 3.5 mm.

Volume Control - Connection

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Volume Control Cap:

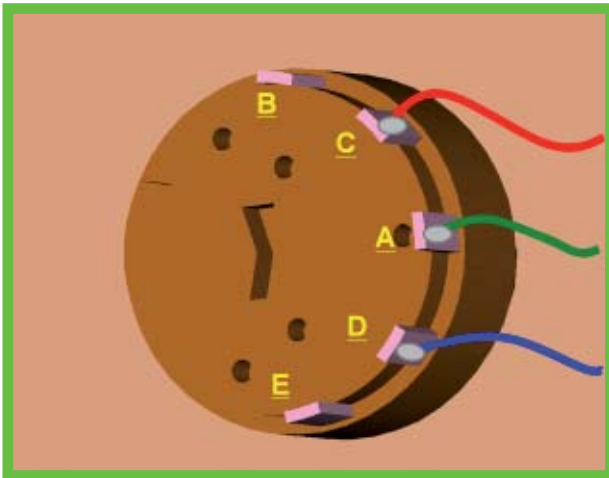
Beige 66-60401
Brown 66-60402
Tan 66-60403



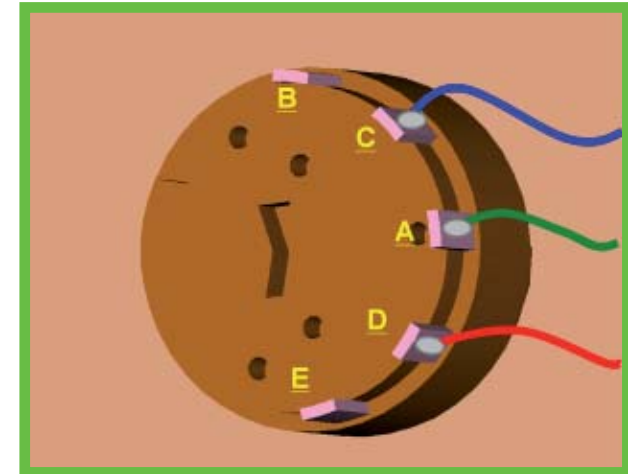
Apply loctite 416 glue to
the base of the Volume
Control at the faceplate.

Let air dry for 5 minutes.

Volume Control - Connection / Right



Volume Control - Connection / Left



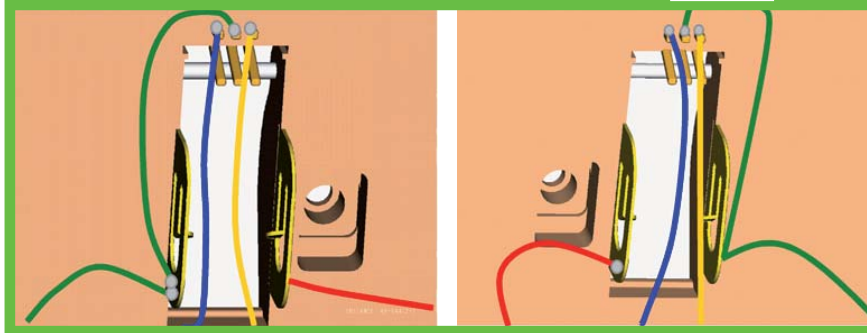
Prepare the faceplate

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Right faceplate

Left faceplate

Green wire 13 mm
p/n 15130213

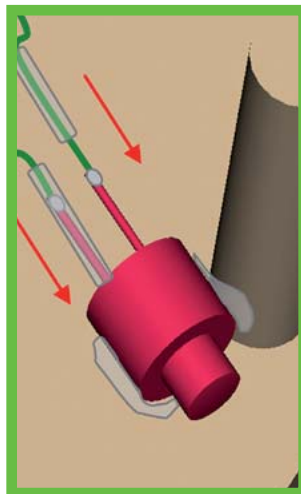


Green wire 18 mm
p/n 15130218 toV-
BAT GND/H15

Blue wire 18 mm
p/n 15130318
toSCL/H9

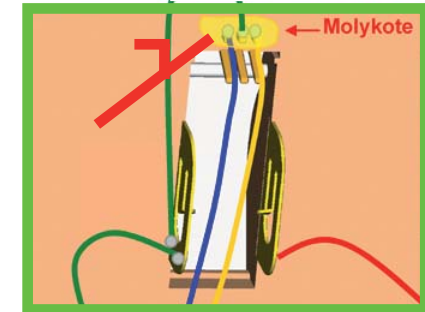
Amber wire 18 mm
p/n 15130118 toSDA/
H8

Red wire 25 mm
p/n 15130025
toVBAT/H16

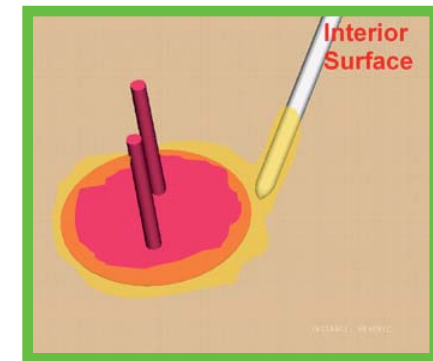


Cut push-button terminals to approx. 1.7 mm and solder push-button wires. Cut the silicone tubings (p/n 26100668388) to approx. 2.5 mm and position them over the soldering points.

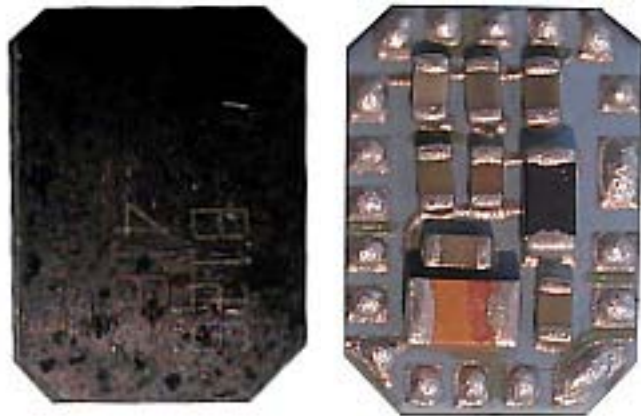
Green stranded wires for
push-button to H10 and H19
p/n 15130218 (18 mm)



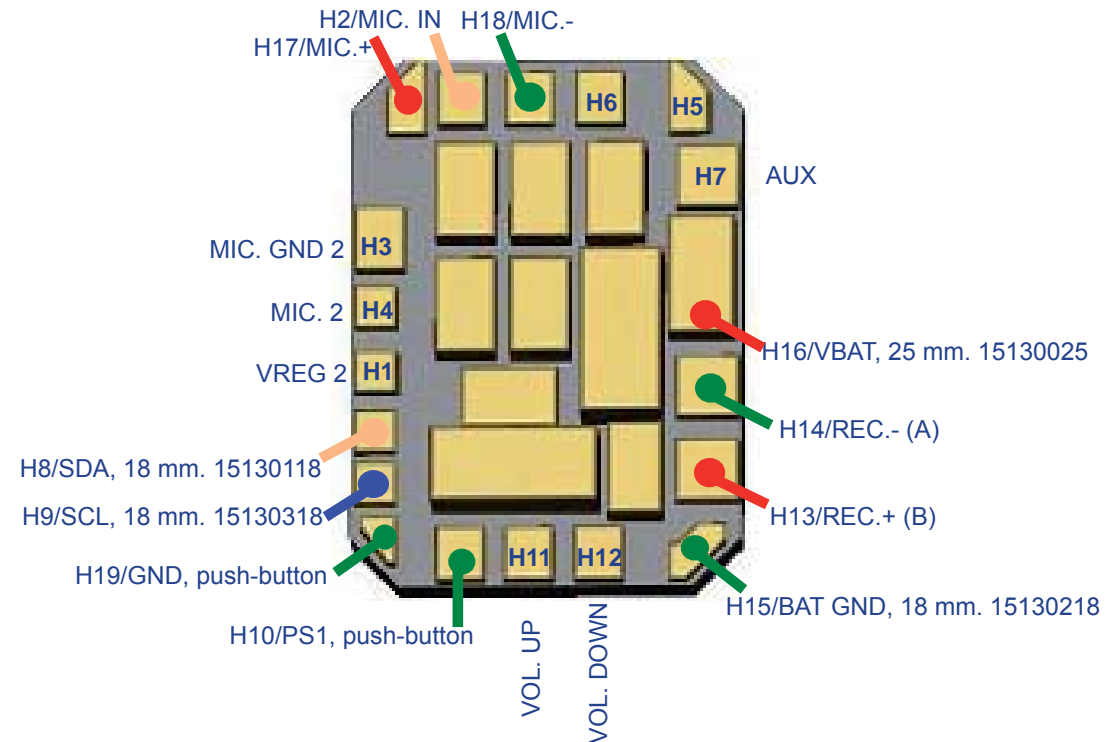
Coat the solder points within the yellow spot by using Molykote. The coat must not be added in the area behind (indicated by the red arrow)



Glue round the push-button
using Loctite 416 8066-599



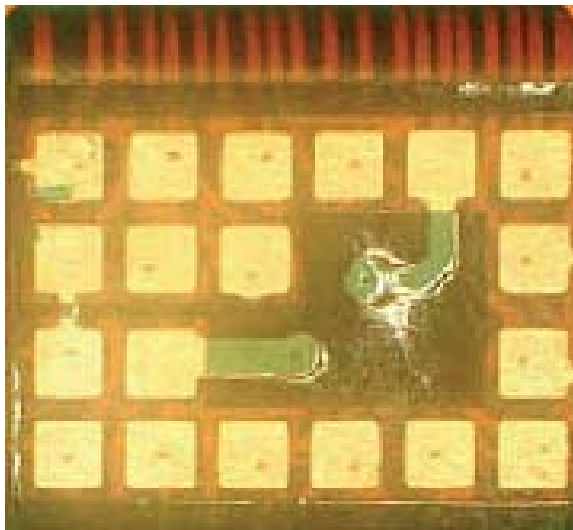
Coyote 2.0 ceramic



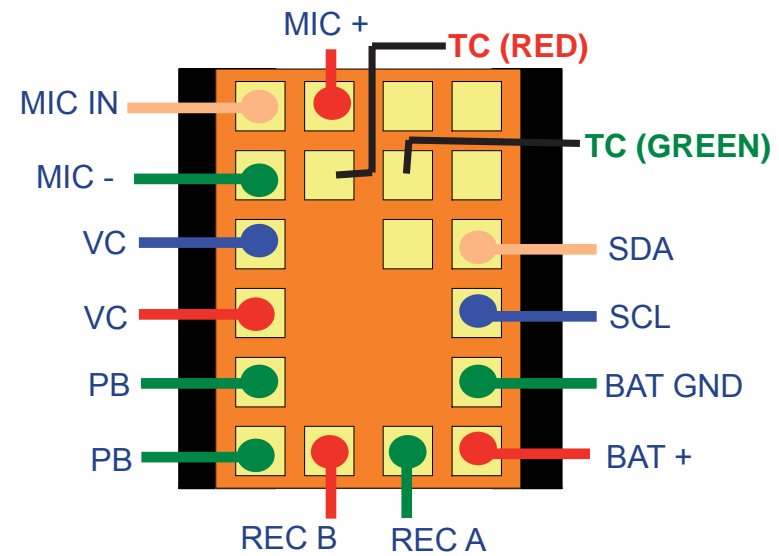
Note:

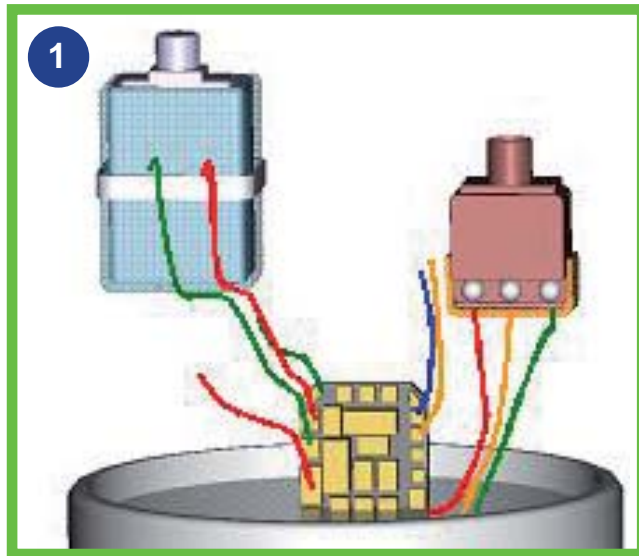
All wires must be handled/bent gently in order to avoid any damaging to the insulation. When connecting/soldering the wires they must be held gently with tweezers to avoid pinching and unraveling.

Pre-tin the soldering points on the hybrid before connecting/soldering the wires.



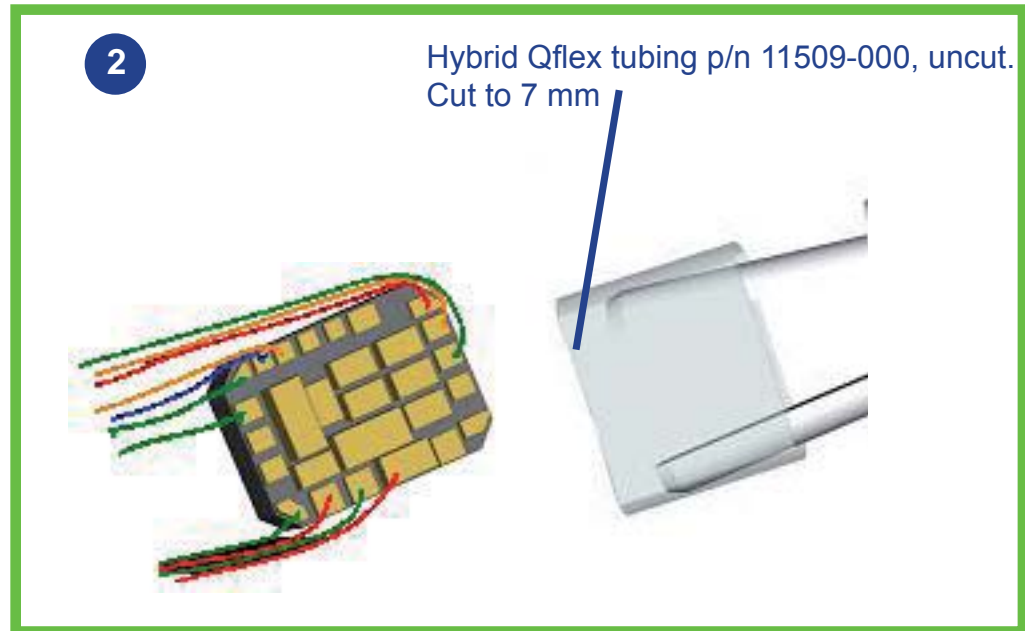
Flex hybrid C2.0
p/n 15120100





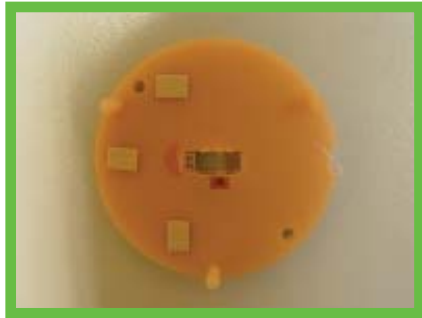
Dip hybrid in EGC-1700 for 5 seconds.
Air dry for 15 seconds. Repeat these two steps.

Apply RTV 734 silicone glue - p/n 10358-000
- round the stud of the microphones before
mounting in the faceplate.

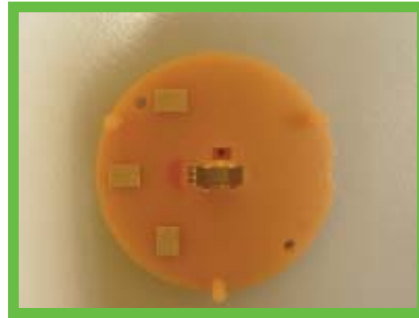


Before mounting into the shell the qflex is slid over the hybrid by
using tweezers.

Blank FP L/R for flt PB

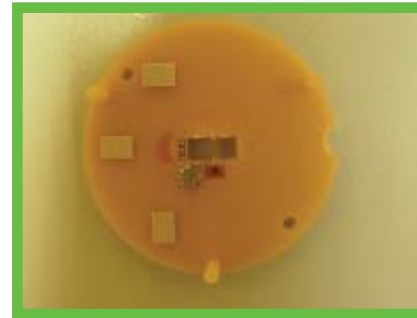


Left

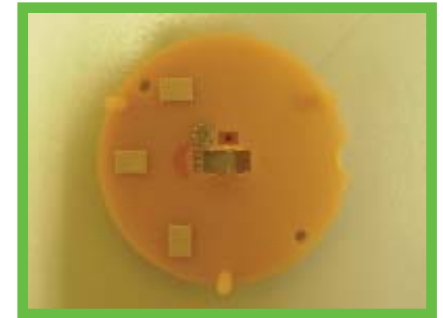


Right

Blank FP L/R for fxd VC and flt PB

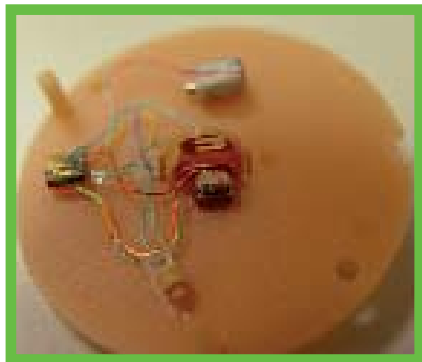


Left

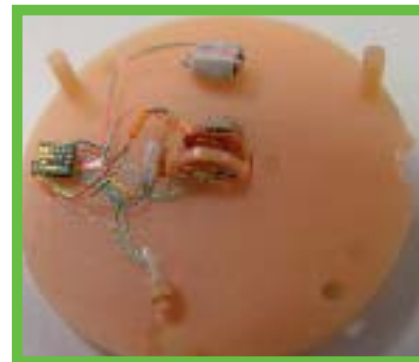


Right

FP ASM L/R for flt PB

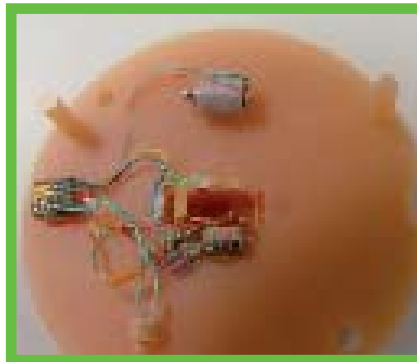


Left
flt PB

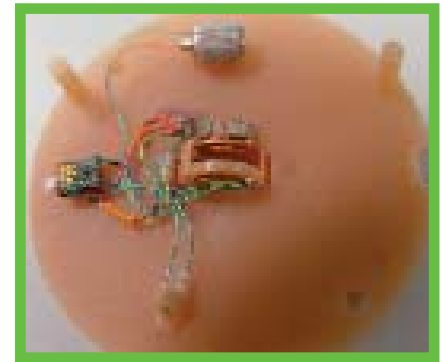


Right
flt PB

FP ASM L/R for fxd VC and flt PB



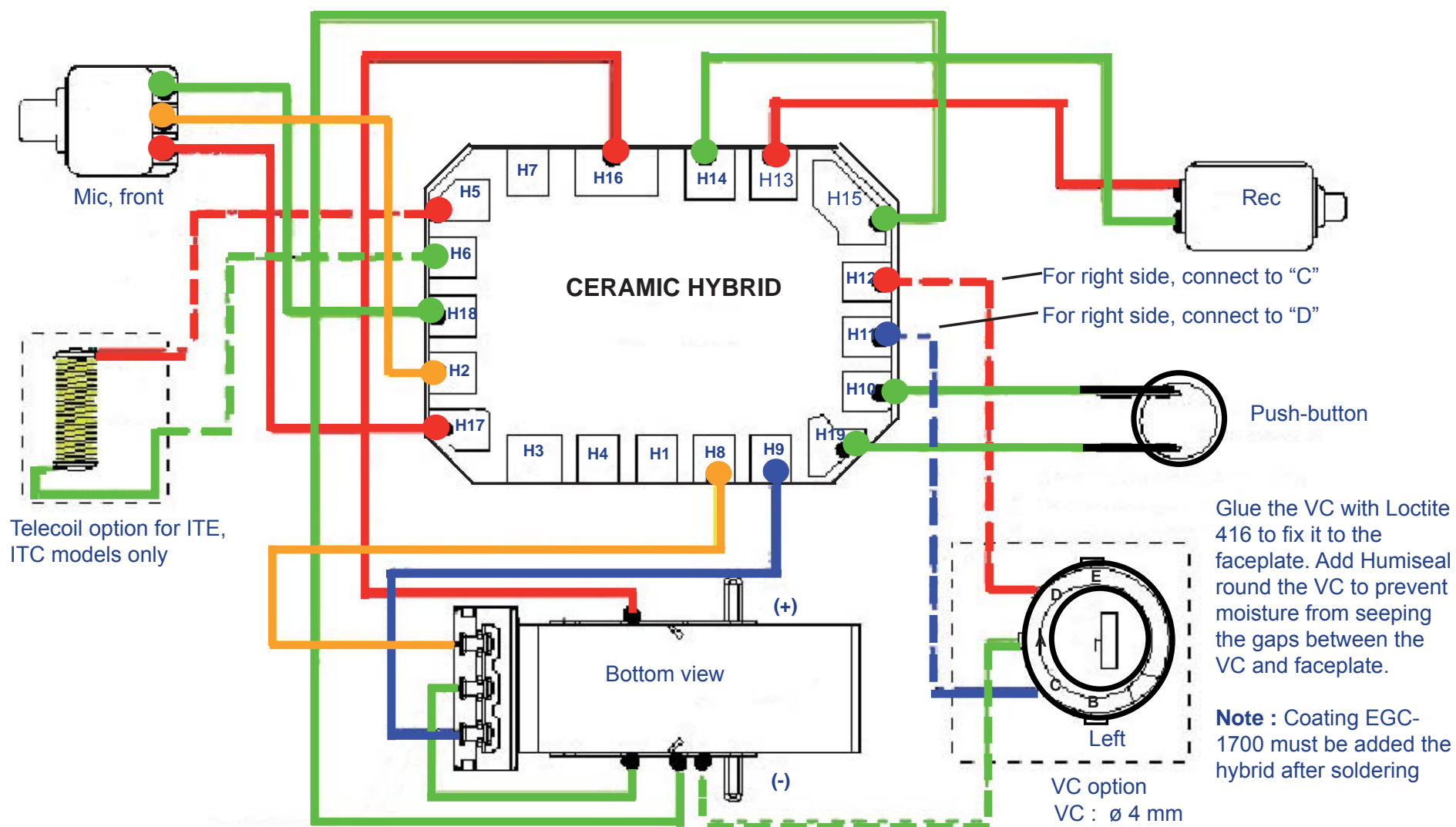
Left



Right

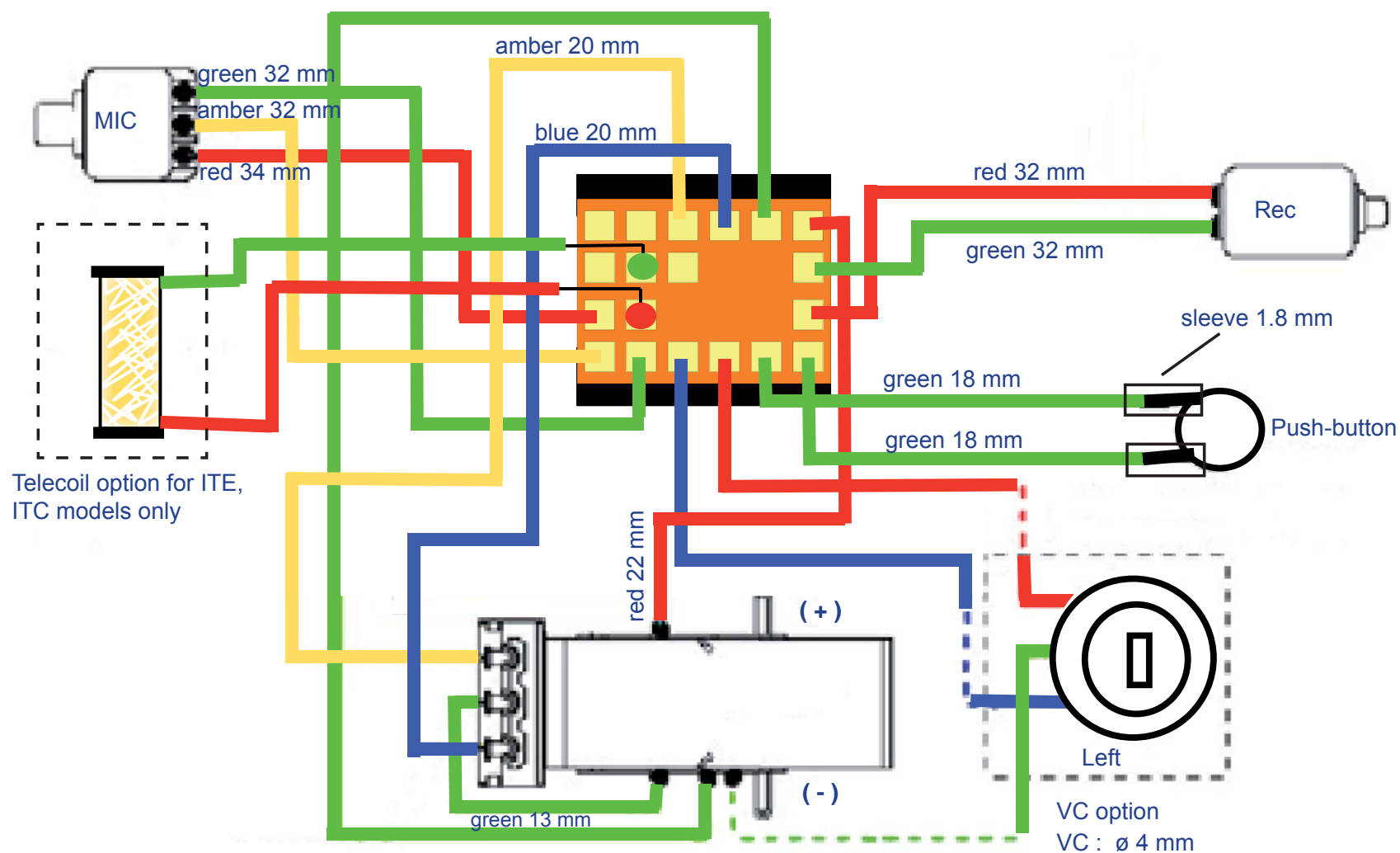
Wiring diagram - (CERAMIC) - VC and telecoil (optional)

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Wiring diagram - (FLEX) - VC and telecoil (optional)

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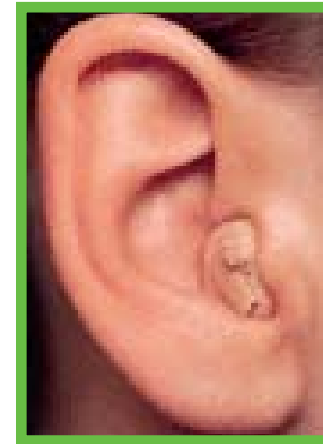
The tool can be used on both sides. One side for size 13 and 312, the other side to be used for size 10



When working on the assembled faceplate a heat sink (p/n 10158701) must always be used in order to prevent damages to the components.



ITC complete in shell (Image II - Left/Right)
Available with or without VC.
Push-button to access up to 2 programmes.
Telecoil option.



ITC placed in ear